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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09,868,657	11/07/2001	Hiroshi Ito	010794	8618

23850 7590 03/28/2003

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EXAMINER

ROBERTSON, JEFFREY

ART UNIT	PAPER NUMBER
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1712

DATE MAILED: 03/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/868,657

Applicant(s)

ITO ET AL.

Examiner

Jeffrey B. Robertson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on 07 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) Z. 6) ☐ Other:

## DETAILED ACTION

### *Specification*

1. The abstract of the disclosure is objected to because it appears to be formulated in two paragraphs. Correction is required. See MPEP § 608.01(b).
2. The disclosure is objected to because of the following informalities: the use of the word "titrated" in the specification, page 5, line 23 is not understood.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 3 and 5-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For claims 3 and 5, the use of the word "obtainable" is indefinite because for claim 3, it is not known if the polyether oligomer is produced by polymerization of an alkylene oxide in the presence of a double metal cyanide complex catalyst or not and for claim 5, it is not known whether the reactive silicon-group containing polyether is produced by the recited method or not.

### *Claim Rejections - 35 USC § 102*

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Yukimoto et al. (U.S. Patent No. 4,983,700).

For claim 1, in column 4, lines 31-48, Yukimoto teaches a reactive silicon-group containing oxyalkylene where the silicon groups are exclusively at the molecular chain terminus. For claims 1, 3, and 4, in Preparation Example, column 10, lines 1-24, Yukimoto teaches that the polyoxypropylene contains 1.7 silicon groups at the molecular ends as confirmed by NMR analysis. This translates into 85% of the terminals being substituted by the silicon groups ( $1.7/2.0 \times 100 = 85\%$ ). In column 9, lines 39-45, Yukimoto teaches the addition of fillers.

For claim 2, in column 3, lines 6-35, Yukimoto teaches the silicon group set forth by applicant, where there must be at least one hydrolyzable group.

For claim 10, in column 4, lines 18-22, Yukimoto teaches that the number average molecular weight is preferred to be between 5,000-15,000, which overlaps the range claimed by applicant.

7. Claims 1-5 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Yukimoto et al. (U.S. Patent No. 4,906,707).

For claim 1, in column 4, lines 2-4, Yukimoto teaches a reactive silicon-group containing oxyalkylene where the silicon groups are exclusively at the molecular chain terminus. For claims 1, 3, and 4, in Synthesis Example 1, column 9, line 45 through column 10, line 7, Yukimoto teaches that the polyoxypropylene contains 1.7 silicon groups at the molecular ends as confirmed by NMR analysis. This translates into 85%

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of the terminals being substituted by the silicon groups ( $1.7/2.0 \times 100=85\%$ ). In column 8, lines 37-45, Yukimoto teaches the addition of fillers.

For claim 2, in column 3, lines 3-30, Yukimoto teaches the silicon group set forth by applicant, where there must be at least one hydrolyzable group.

For claim 5, in column 4, lines 10-26, Yukimoto teaches that a polyether having an end group corresponding to applicant's general formula (2) is reacted with a hydrosilyl group in the presence of a platinum catalyst. Note that in Yukimoto's formula (III),  $R^3$  is a monovalent organic group having 1-20 atoms.

For claim 10, in column 4, lines 5-9, Yukimoto teaches that the number average molecular weight is preferred to be between 5,000-15,000, which overlaps the range claimed by applicant.

8. Claims 1-4 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kimura et al. (U.S. Patent No. 5,424,383).

For claims 1-4, in column 2, lines 61-66, Kimura teaches that an alkylene oxide is blocked by a hydrolyzable silyl group at the terminal end of the molecular chain. In column 3, lines 1-32, Kimura teaches the hydrolyzable silyl group that corresponds to applicant's general formula (1) where  $m=0$ . In Synthesis Example 1, Column 12, line 54 through column 13, line 7, Kimura teaches a polymer that has propylene oxide chains where the amount of silyl groups is 95% based on NMR analysis. In column 11, lines 43-45, Kimura teaches the addition of a reinforcing filler.

For claim 10, in column 5, lines 19-23, Kimura teaches that the molecular weight ranges from 2,000 to 20,000, which overlaps the range claimed by applicant.

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9. Claims 1-4 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Fujita et al. (U.S. Patent No. 5,648,427).

For claims 1-4, and 10, in column 2, lines 4-55, Fujita teaches an oxyalkylene having a reactive silicon group, where the reactive silicon group is of the formula set forth by applicant in claim 2. In column 3, lines 20-23, Fujita teaches that the reactive silicon group should preferably be located at the terminals of the molecular chain. In column 3, lines 37-55, Fujita teaches an example of the reaction where the hydrolyzable silicon groups are attached to the molecular chain terminus. In the Synthesis Example, column 7, lines 30-47, Fujita teaches that the polyoxypropylene contains 1.7 silicon groups at the molecular ends as confirmed by NMR analysis. This translates into 85% of the terminals being substituted by the silicon groups ( $1.7/2.0 \times 100 = 85\%$ ). In column 6, lines 22-26, Fujita teaches the addition of reinforcing fillers.

10. Claims 1-4 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamamoto et al. (English Translation of JP 06-279693 from JPO website).

For claims 1-4 and 10, in paragraph [0039] of the translation, Yamamoto teaches Polymers A and B, which are polypropylene oxides containing dimethoxy methyl silyl groups at 85% and 93 % of the polymers respectively. Here, for claim 10, Yamamoto teaches that the molecular weights are above 10,000. In paragraph [0020], the translation sets forth that fillers are added to the composition. In paragraph [0009] of the translation, Yamamoto teaches reactive silicon group formula that corresponds to applicant's general formula (1). In paragraph [0029] of the translation, Yamamoto teaches that the degree of silylation is elucidated by H-NMR.

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11. Claims 1-4 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Watabe et al. (English Translation of JP 05-125273 from JPO website).

For claims 1-4 and 10, in paragraph [0053] of the translation, Watabe teaches a polypropylene oxide containing dimethoxy methyl silyl propyl groups at 90 % of the polymers respectively. Here, for claim 10, Watabe teaches that the molecular weight is above 10,000. The reactive silicon group corresponds to applicant's general formula (1), when  $m=0$ . In paragraph [0045], the translation sets forth that fillers are added to the composition.

12. Claims 1-4 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Yanase et al. (English Translation of JP 05-222284 from JPO website).

For claims 1-4 and 10, in paragraph [0046] of the translation, Yanase teaches a polypropylene oxide containing dimethoxy methyl silyl propyl groups at 90 % of the polymers respectively. Here, for claim 10, Yanase teaches that the molecular weight is above 10,000. The reactive silicon group corresponds to applicant's general formula (1), when  $m=0$ . In paragraph [0039], the translation sets forth that fillers are added to the composition.

### ***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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14. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yukimoto et al. (U.S. Patent No. 4,906,707) as applied to claims 1 and 5 above and further in view of Higuchi et al. (U.S. Patent No. 5,223,583).

For claims 1 and 5, Yukimoto teaches the limitations of those claims as set forth above in paragraph 7. Yukimoto does not expressly teach situations where  $R^3$  is  $CH_3$  or  $R^4$  is methylene. However, Yukimoto does teach that  $R^3$  can be organic groups of 1-20 carbon atoms and  $R^4$  is a divalent group of 1-20 atoms in column 4, lines 20-24. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a methyl group for  $R^3$  and a methylene group for  $R^4$ . The motivation would have been that Yukimoto expressly provides for these groups as set forth above. One of ordinary skill in the art would have used the methyl and methylene groups because they provide the smallest amount of substitution to fulfill the definitions set forth by Yukimoto.

For claim 6, Yukimoto also does not expressly teach the use of platinum-olefin complexes as catalysts.

Higuchi teaches the preparation of silylated polyethers in column 4, lines 29-51. Here Higuchi teaches the use of transition metal catalysts for the hydrosilylation reaction and lists platinum olefin complexes as suitable catalysts.

Higuchi and Yukimoto are analogous art in that they are from the same field of endeavor, namely the preparation of silyl-terminated polyoxyalkylenes by hydrosilylation reactions. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the platinum-olefin complexes as the catalysts of the hydrosilylation between the unsaturated polyoxyalkylenes and the hydrosilyl groups. It is prima facie



obvious to substitute equivalents, motivated by a reasonable expectation that the respective species will behave in a comparable manner or give comparable results in comparable circumstances. *In re Ruff* 118 USPQ 343, *In re Jezei* 158 USPQ 99; the express suggestion to substitute one equivalent for another need not be present to render the substitution obvious. *In re Font*, 213 USPQ 532.

15. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yukimoto et al. (U.S. Patent No. 4,906,707) as applied to claim 1 above, and further in view of Hattori et al. (EP 0 856 569).

For claim 1, Yukimoto teaches the limitations of claim 1 as detailed above. In column 1, lines 19-25, Yukimoto teaches that the oxyalkylenes having silyl groups are useful as sealants. Yukimoto fails to teach a direct glazing method using the compositions set forth in the patent.

Hattori, on page 2, line 45 through page 3, line 39, teaches a direct glazing method using silyl terminated oxyalkylenes.

Yukimoto and Hattori are analogous art because they are both directed to silyl terminated oxyalkylenes and their use. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the polymers Yukimoto in the direct-glazing method set forth by Hattori. The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

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16. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura et al. (U.S. Patent No. 5,424,383) as applied to claim 1 above, and further in view of Hattori et al. (EP 0 856 569).

For claim 1, Kimura teaches the limitations of claim 1 as detailed above. In column 1, lines 9-16, Kimura teaches that the oxyalkylenes having silyl groups are useful as sealants and adhesives for automobiles. Kimura fails to teach a direct glazing method using the compositions set forth in the patent.

Hattori, on page 2, line 45 through page 3, line 39, teaches a direct glazing method using silyl terminated oxyalkylenes.

Kimura and Hattori are analogous art because they are both directed to silyl terminated oxyalkylenes and their use. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the polymers Kimura in the direct-glazing method set forth by Hattori. The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

17. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita et al. (U.S. Patent No. 5,424,383) as applied to claim 1 above, and further in view of Hattori et al. (EP 0 856 569).

For claim 1, Fujita teaches the limitations of claim 1 as detailed above. In column 7, lines 18-26, Fujita teaches that the oxyalkylenes having silyl groups are useful as sealants and adhesives for automobiles and glass substrates. Fujita fails to teach a direct glazing method using the compositions set forth in the patent.

Hattori, on page 2, line 45 through page 3, line 39, teaches a direct glazing method using silyl terminated oxyalkylenes.

Fujita and Hattori are analogous art because they are both directed to silyl terminated oxyalkylenes and their use. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the polymers Kimura in the direct-glazing method set forth by Hattori. The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

***Allowable Subject Matter***

18. Claim 9 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. For claim 9, the cited prior art does not teach a substituted alkenyl group as set forth in claim 9.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey B. Robertson whose telephone number is (703) 306-5929. The examiner can normally be reached on Mon-Fri 7:00-3:00.

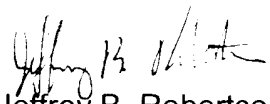
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert A. Dawson can be reached on (703) 308-2340. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

  
Jeffrey B. Robertson  
Examiner  
Art Unit 1712

JBR  
March 18, 2003